[redacted] 95112

**STIC-Biotech/Ch mLib**

**From:** Parkin, Jeffrey
**Sent:** Tuesday, May 27, 2003 8:35 PM
**To:** STIC-Biotech/ChemLib
**Subject:** U.S. Serial No. 09/147,362

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Please search **SEQ ID NOS.: 2, 3, 4, 5, 8, and 9** from the aforementioned application (**U.S. Serial No. 09/147,362**) v. all relevant databases, including interference. Place results on **BOTH** paper and disk. Thanks!

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AU 1648
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308-2227

| | TYPE OF SEARCH: | VENDOR/COST (where applic.) |
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| Date Completed:_____ | Litigation:_____ | Lexis/Nexis:_____ |
| Searcher Prep/Review:_____ | Full text:_____ | Sequence Sys.:_____ |
| Clerical:_____ | Patent Family:_____ | WWW/Internet:_____ |
| Online time:_____ | Other:_____ | Other (specify):_____ |

FILE 'USPATFULL' ENTERED AT 20:46:29 ON 27 MAY 2003

E CHENEBAUX D M B/IN
L1 24307 S (HIV OR HUMAN IMMUNODEFICIENCY VIRUS)
L2 283 S L1 AND (GROUP O OR TYPE O)
L3 35 S L2 AND GP41
L4 12 S L3 AND (IMMUNODOMINANT)

FILE 'MEDLINE' ENTERED AT 21:04:48 ON 27 MAY 2003

E CHENEBAUX D M B/AU
L5 6 S E2
L6 130935 S (HIV OR HUMAN IMMUNODEFICIENCY VIRUS)
L7 194 S L6 AND (GROUP O OR TYPE O OR SUBTYPE O)
L8 34 S L7 AND GP41
L9 10 S L8 AND IMMUNODOMINANT

FILE 'WPIDS' ENTERED AT 21:11:14 ON 27 MAY 2003

E CHENEBAUX D M B/IN
L10 1 S E3
L11 15260 S (HIV OR HUMAN IMMUNODEFICIENCY VIRUS)
L12 36 S L11 AND (GROUP O OR TYPE O OR SUBTYPE O)
L13 7 S L12 AND GP41

L4 ANSWER 2 OF 12 USPATFULL
2003:71319 Nucleotide sequences of HIV-1 group (or subgroup) O retroviral antigens.
Charneau, Pierre, Paris, FRANCE
Clavel, Francois, Paris, FRANCE
Borman, Andrew, Villemeux-Sur-Eure, FRANCE
Quillent, Caroline, Vitry-Sur-Seine, FRANCE
Guetard, Denise, Paris, FRANCE
Montagnier, Luc, Le Plessis-Robinson, FRANCE
Saint-Martin, Jacqueline Donjon De, Clamart, FRANCE
Cohen, Jacques H.M., Reims, FRANCE
Institut Pasteur (non-U.S. corporation)
US 2003049604 A1 20030313
APPLICATION: US 2001-26741 A1 20011227 (10)
PRIORITY: FR 1994-12554 19941020
FR 1995-2526 19950303
DOCUMENT TYPE: Utility; APPLICATION.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An HIV-1 type (or subtype) O retrovirus protein, or a natural or synthetic polypeptide or peptide including at least a part of said protein, which is capable of being recognised by antibodies isolated from a serum resulting from infection by an HIV-1 type O VAU strain or an HIV-1 type (or subtype) O DUR strain.

CLM What is claimed is:

1. HIV-1 group (or subgroup) O retroviral protein, or natural or synthetic peptide or polypeptide comprising at least a part of said protein, which is capable of being recognized by antibodies which may be isolated from serum obtained after an infection with an HIV-1 group O VAU strain, or an HIV-1 group (or subgroup) O DUR strain.

2. Protein, polypeptide or peptide according to claim 1, characterized in that it may be obtained by expression, in a host cell, of a nucleotide sequence, more particularly DNA and cloned DNA fragments which may be obtained from RNA, from cDNA or from primers which may be used for gene amplification, derived from RNA or from DNA of the HIV-1 group (or subgroup) O retrovirus, said nucleotide sequence being characterized in that it comprises the sequence corresponding to Seq ID No. 5 as well as any portion of that sequence or variant of that portion which is capable of hybridizing with the corresponding DNA or RNA of the HIV-1 group (or subgroup) O virus, and in that said protein comprises the amino acid sequence between residues 1 and 526 of Seq ID No. 6 as well as any peptide, polypeptide, glycoprotein or variant derived from said sequence having an epitope which may be recognized by antibodies induced by the HIV-1.sub.(VAU) virus.

3. Protein, polypeptide or peptide according to claim 1 or 2, characterized in that it may be obtained by expression, in a host cell, of a nucleotide sequence according to claim 1, and in that said protein comprises the amino acid sequence between residues 527 to 877 of Seq ID No. 7 as well as any peptide, polypeptide, glycoprotein or variant derived from said sequence having an epitope which may be recognized by antibodies induced by the HIV-1.sub.(VAU) virus.

4. Peptide or polypeptide according to claim 1 to 3, characterized in that it comprises the sequence CKNRLIC or in particular the sequence RLLALETFIQNWWLLNLWGCKNRLIC or a variant of that sequence such as the sequence RLWALETLIQNQQRLNLWGCKGKLIC, the sequence RLLALETLLQNQQLLSLWGCKGKLVC, the sequence RARLLALETFIQNQQLLNLWGCKNRLICYTS

VKWNKT, the sequence CERPGNQKIMAGPMAWYS MALSNTKGDTRAAYC or the sequence GPMAWY.

5. Synthetic peptide, characterized in that it is a protein fragment according to one of claims 1 to 4, in that it is obtained from the sequence SEQ ID No. 6 or from the sequence SEQ ID No. 7 and in that it is recognized by antibodies induced against an HIV-1.sub.(VAU) retrovirus or variant of this fragment capable of being recognized by antibodies induced by an HIV-1.sub.(VAU) retrovirus.

6. Protein, polypeptide or peptide according to claim 1, characterized in that said protein is a protein of the HIV-1 group (or subgroup) O.sub.(DUR) virus, deposited on Feb. 23, 1995 at the CNCM under the reference I-1542 or a natural or synthetic peptide or polypeptide comprising at least a part of said protein or a peptide whose sequence is distinguished from that of the above by substitution, deletion or addition of amino acids, this separate peptide nevertheless retaining the antigenic characteristics of the above one.

7. Peptide according to claim 6, containing at least 4 consecutive amino acids whose entire consecutive amino acid sequence is contained in the GAG sequence represented in FIG. 8 or in an immuno-logically similar GAG sequence obtained from a variant of the HIV-1 group (or subgroup) O DUR virus, said immunologically similar sequence being recognized by antibodies which also specifically recognize at least one of the sequences AHPQQA, LWTTRAGNP contained in the GAG sequence of FIG. 8.

8. Peptide according to claim 7, characterized in that it consists of a peptide whose amino acid sequence is contained either in one of the following sequences:

SPRTLNAWVKAVEEKAFNPEIIPMFMALSEGA (1)

MLNATGGHQGALQVLKEVIN (2)

GPLPPGQIREPTGSDIAGTTSTQQEQI (3)

IPVGDIYRKWIVLGLNKMVKMYSPVSILDI (4)

QGPKEPFRDYVDRFYKTKLAE (5)

AHPQQA (5a)

LWTTRAGNP (5b) or in the corresponding immunologically similar sequence, this peptide containing at least 4 consecutive amino acids of one of said sequences.

9. Peptide according to claim 8, characterized in that it consists of a peptide whose amino acid sequence is contained either in one of the following sequences:

SPRTLNAWVK (6)

GSDIAGTTST (7)

QGPKEPFRDYVDRF (8)

or in the corresponding immunologically similar sequence, this peptide containing at least four consecutive amino acids of one of said sequences.

10. Peptide according to claim 8, characterized in that it contains the following amino acid sequence: NPEI (9).

11. Peptide according to claim 8, characterized in that it contains the following amino acid sequence: AVEEKAFNPEIIPMFM (10).

12. Peptide according to claim 6, containing at least 4 consecutive amino acids, whose entire sequence is contained in the sequence of the region of the V3 loop of gp120 represented in FIG. 9 or in the corresponding immunologically similar sequence, obtained from a variant of the HIV-1 group (or subgroup) O DUR virus, said immunologically similar sequence being recognized by antibodies which also specifically recognize at least one of the sequences:

KEIKI (12)

EREGKGAN (13),

CVRPGNNSVKEIKI (14),

QIEREGKGANSR (15).

13. Peptide according to claim 12, containing: a) either the sequence CVRPGNNSVKEIKIGPMAWYSMQIEREGKGANSRTAFC (11) or a part of this sequence which contains at least 4 amino acids b) or an amino acid sequence which is separate from the sequence of a) in which one or more amino acids are replaced with two amino acids, with the proviso that the peptide retains its reactivity with an antiserum against the above said peptide, c) or an amino acid sequence which is separate from a) or b), in which one or more amino acids have been deleted or added, with the proviso that the peptide retains its reactivity with an antiserum against the peptide of a), d) or the corresponding immunologically similar sequence or part of sequence.

14. Peptide according to claim 13, which contains the sequence KEIKI (12).

15. Peptide according to claim 13, which contains the sequence EREGKGAN (13).

16. Peptide according to claim 13 or 14, which contains either the amino acid sequence CVRPGNNSVKEIKI (14) or the sequence QIEREGKGANSR (15).

17. Peptide according to claim 13, which comprises the sequence GPMAWYSM (16).

18. Peptide according to claim 6, containing at least 4 consecutive amino acids, whose entire sequence is contained in the sequence of the immunodominant region of gp41 represented in FIG. 9 or in the corresponding immunologically similar sequence, obtained from a variant of the HIV-1 group (or subgroup) O DUR virus, said immunologically similar sequence being recognized by antibodies which also specifically recognize at least one of the sequences:

RLLALETLMQNQQL (17),

LNLWGCRGKAICYTSVQWNETWG (18),

CRGKAI (19),

SVQWN (20),

RLLALETLMONQQLLNLWGCRGKAICYTS (21),

QNQQLLNLWGCRGKAICYTSVQWN (22).

19. Peptide according to claim 18, containing the sequence RLLALETLMQNQQL (17) LNLWGCRGKAICYTSVQWNETWG (18) or part of this peptide containing: a) either the sequence CRGKAI (19) or the sequence SVQWN (20) in which Q is, where appropriate, replaced by a different amino acid, which is nevertheless also different from K, or the two sequences at the same time, b) or an amino acid sequence which is separate from the sequence of a) in which one or more amino acids are replaced with two amino acids, with the proviso that the peptide retains its reactivity with an antiserum against the peptide of a), c) or an amino acid sequence which is separate from a) or b), in which one or more amino acids have been deleted or added, with the proviso that the peptide retains its reactivity with an antiserum against the peptide of a), d) or in the corresponding immunologically similar sequence or part of sequence.

20. Peptide according to claim 19, characterized in that its N-terminal sequence which contains at least 8 amino acids is not immunologically recognized by antibodies formed against the sequence RILAVERY contained in the immunodominant region of gp41 of the HIV-1-LAI strain.

21. Peptide according to claim 19, characterized in that it is not recognized by antibodies formed against the peptide SGKLIC of the HIV-1-LAI strain.

22. Peptide according to claim 19, characterized in that it contains one or the other of the following two sequences:

RLLALETLMONQQLLNLWGCRGKAICYTS (21)

QNQQLLNLWGCRGKAICYTSVQWN (22).

23. Nucleotide sequence, more particularly DNA and cloned DNA fragments which may be obtained from RNA, from cDNA or from primers which may be used for gene amplification, derived from the RNA or the DNA of the HIV-1 group (or subgroup) O retrovirus, said nucleotide sequence being characterized in that it comprises the sequence corresponding to one of the sequences Seq ID No. 5, Seq ID No. 9, Seq ID No. 10 or Seq ID No. 11, as well as any portion of this sequence, in particular the sequences coding for the proteins, polypeptides or peptides of any one of claims 8 to 22 or variant of this portion which is capable of hybridizing with the corresponding DNA or RNA of the HIV-1 group (or subgroup) O virus.

24. Nucleotide sequence according to claim 23, characterized in that it is DNA or DNA fragments obtained from RNA, from cDNA or from primers for gene amplification, derived from the RNA or the DNA of the HIV -1.sub.(VAU) or HIV-1.sub.(DUR) retrovirus, the sequence comprising the sequence corresponding to Seq ID No. 5 as well as any portion of this sequence or variant of this portion which is capable of hybridizing with the corresponding DNA or RNA of the HIV -1.sub.(VAU) virus, or the sequence comprising the sequence corresponding to Seq ID No. 9 or Seq ID No. 10 or Seq ID No. 11, as well as any portion of this sequence or variant of this portion which is capable of hybridizing with the corresponding DNA or RNA of the

HIV-1.sub.(DUR) virus.

25. Nucleotide sequence according to claim 23 or claim 7, characterized in that said sequence is chosen from the group of sequences corresponding to Seq ID No. 1, Seq ID No. 2, Seq ID No. 3 and Seq ID No. 4.

26. Nucleotide sequence, characterized in that it comprises the sequence of nucleotides corresponding to SEQ ID No. 7 and in that it codes for the integrase of an HIV-1 group (or subgroup) O retrovirus, in particular of an HIV-1.sub.(VAU) retrovirus, or nucleotide sequence which hybridizes with the sequence containing the sequence SEQ ID No. 7.

27. Oligonucleotide comprising at least 9 nucleotides, as obtained from a nucleotide sequence according to any one of claims 23 to 26, which is capable of being used as a primer for the gene amplification of an HIV-1 group (or subgroup) O retrovirus.

28. Oligonucleotide according to claim 27, having a sequence consisting of at least nine consecutive nucleotides of the following nucleotide sequences:

ATT CCA ATA CAC TAT TGT GCT CCA-3'

AAA GAA TTC TCC ATG ACT GTT AAA-3'

GGT ATA GTG CAA CAG CAG GAC AAC-3'

AGA GGC CCA TTC ATC TAA CTC-3'

29. Oligonucleotide according to claim 28, characterized in that it may be used during a process of gene amplification of a nucleotide sequence coding for a peptide according to any one of claims 6 to 22.

30. Nucleotide sequence which may be used as a probe, characterized in that it hybridizes under highly stringent hybridization conditions with the DNA produced by gene amplification by means of primers according to any one of claims 27 to 29.

31. Composition for the detection of the presence or absence of an HIV-1 group (or subgroup) O retrovirus, in particular the HIV-1.sub.(VAU) and/or HIV-1.sub.(DUR) retrovirus, in samples of serum or of other biological liquids or tissue obtained from patients suspected of being carriers of an HIV-1 group (or subgroup) O retrovirus, said composition being characterized in that it comprises at least one probe obtained from a nucleotide sequence derived from the genome of the HIV-1.sub.(VAU) virus, particularly an HIV-1.sub.(VAU) DNA fragment containing the env region or a part of the env region of the HIV-1.sub.(VAU) virus, of a variant of HIV-1.sub.(VAU) as defined in any one of claims 23 to 27, and/or a probe obtained from a nucleotide sequence derived from the genome of the HIV-1.sub.(DUR) virus, the HIV -1.sub.(DUR) DNA containing the env region or a part of the env region and a part of the GAG region of the HIV-1.sub.(DUR) virus as defined [lacuna] claim 23 or 24.

32. Composition according to claim 12, characterized in that said composition also comprises a probe obtained from a nucleotide sequence obtained from HIV-1 not belonging to the O subgroup and/or from HIV-2.

33. Composition for the detection of the presence or absence of an HIV-1 group (or subgroup) O retrovirus, in particular the HIV-1.sub.(VAU) retrovirus and/or the HIV-1 group (or subgroup) O.sub.(DUR) retrovirus in a biological sample, said composition being characterized in that it comprises at least two nucleotide sequences according to any one of claims 23 to 27, and at least two nucleotide sequences according to claim 23 or 24, which are respectively derived from the genome of the HIV-1.sub.(VAU) and HIV-1.sub.(DUR) viruses, which sequences can be used as primers for amplification, in particular by PCR, of the DNA and/or the RNA of HIV-1 retrovirus of the O subgroup and in particular of HIV-1.sub.(VAU) and HIV-1.sub.(DUR).

34. Nucleotide sequence, characterized in that it is an RNA sequence corresponding to a DNA sequence according to any one of claims 23 to 31.

35. Composition for the in vitro detection of the presence, in a human biological sample, of anti-HIV-1.sub.(VAU) and anti-HIV-1.sub.(DUR) antibodies, said composition comprising at least one antigen comprising a protein, a glycoprotein, a polypeptide or a peptide of the envelope protein of an HIV-1.sub.(VAU) retrovirus as defined in any one of claims 1 to 5 and/or of the sequence comprising the sequence corresponding to Seq ID No. 9 or Seq ID No. 10 or Seq ID No. 11, as well as any portion of this sequence or variant of this portion which is capable of hybridizing with the corresponding DNA or RNA of the HIV-1.sub.(DUR) virus.

36. Composition according to claim 35, characterized in that it also comprises an antigen such as a protein, a glycoprotein, a polypeptide or a peptide of an HIV-1 virus not belonging to the subgroup O and/or of an HIV-2 virus or a peptide derived from an HIV-1 virus not belonging to the subgroup O and/or of an HIV-2 virus having an epitope which may be recognized by the antibodies induced by the HIV-1 virus not belonging to the subgroup O and/or the HIV-2 virus.

37. Composition according to claim 36, characterized in that the proteins and/or glycoproteins of HIV-1 not belonging to the subgroup O and/or of HIV-2 are gag or pol proteins or peptides thereof.

38. Composition according to claim 37, characterized in that the proteins and/or glycoproteins of HIV-1 not belonging to the subgroup O and/or of HIV-2 are envelope glycoproteins.

39. Composition according to any one of claims 35 to 38, characterized in that said composition comprises a peptide sequence corresponding to the entire region 590-620 of the gp41 protein of HIV -1.sub.(VAU) or a part of this region which is specific for HIV -1.sub.(VAU).

40. Composition according to claim 20, characterized in that said peptide sequence is the sequence -TFIQN-, CKNRLIC or WGCKNR.

41. Antibody which may recognize a protein, a peptide or a polypeptide derived from said protein according to any one of claims 1 to 22.

42. Process for the in vitro diagnosis of an infection caused by the HIV-1.sub.(VAU) virus and/or by the HIV-1.sub.(DUR) virus, said process comprising: the placing in contact of a serum or of

another biological medium, derived from a patient forming the subject of the diagnosis, with at least one of the envelope proteins or glycoproteins of the HIV-1.sub.(VAU) and/or HIV -1.sub.(DUR) virus or of a peptide or polypeptide obtained from one of these proteins or glycoproteins respectively according to any one of claims 1 to 5 and according to any one of claims 6 to 22, or a composition according to any one of claims 35 to 38, and the detection of an immunological reaction.

43. Reagent required for the Western blot (immunoblot) or ELISA reaction, containing an envelope protein or glycoprotein of the HIV-1.sub.(VAU) and/or HIV-1.sub.(DUR) virus or of a peptide or polypeptide obtained from one of these proteins or glycoproteins according to any one of claims 1 to 5 and according to any one of claims 6 to 22 or a composition according to any one of claims 35 to 38.

44. Use of a nucleotide sequence according to claim 23 or 24 in order to induce in vivo the synthesis of antibodies directed against the antigen coded for by said sequence.

45. Immunogenic composition according to any one of claims 35 to 38, which is capable of inducing antibodies in animals.

46. Diagnostic kit for the in vitro detection, on a biological sample, of an infection with an HIV-1 subgroup O retrovirus, for example of an HIV-1.sub.(VAU) and/or HIV-1.sub.(DUR) retrovirus, characterized in that it comprises: primers according to any one of claims 27 to 29 for the gene amplification of an HIV -1 subgroup O retrovirus, reagents required for the gene amplification reaction.

47. Kit for the in vitro detection, on a biological sample, of an HIV-1 subgroup O retrovirus, characterized in that it comprises as optionally labeled probe, at least one nucleotide sequence according to one of claims 23 to 29 and 34 or a composition according to one of claims 31, 32 or 33, and optionally another nucleotide probe according to any one of claims 23 to 29 or composition according to any one of claims 31, 32 or 33, which is optionally immobilized on a solid support.

48. Kit according to claim 28, characterized in that it also comprises the reagents required for carrying out a hybridization.

49. Process of detection and discrimination, in a biological sample, between antibodies characteristic of an HIV-1 group (or subgroup) O retrovirus and antibodies characteristic of an HIV -1 subgroup M retrovirus, characterized by the placing in contact of this biological sample with a peptide chosen from peptides (1), (2), (3), (4), (5a) and (5b) of claim 8, peptide (9) of claim 10 and peptide (10) of claim 11.

50. Process of detection and discrimination, in a biological sample, between antibodies characteristic of an HIV-1 group (or subgroup) O retrovirus and antibodies characteristic of an HIV -1 subgroup M retrovirus, characterized by the placing in contact of this biological sample with a peptide obtained from one of the HIV-1 subgroup M viruses taken into consideration in FIGS. 8 and 9 and homologous with a peptide chosen from those of claim 49, the sequence of this homologous peptide resulting from vertical alignments of its own successive amino acids, which are themselves contained in the pertinent peptide sequence relative to the corresponding HIV-1

subgroup M virus and represented in FIG. 8 or 9 with the successive amino acids of the chosen peptide sequence, as also follows from FIG. 8 or 9.

51. Process of detection and discrimination between infection with an HIV-1 group (or subgroup) O retrovirus and of the HIV -1 subgroup M type, characterized by the placing in contact of sera, derived from individuals subjected to a diagnostic test for AIDS, with the peptide RILAVERY.

52. Process for the detection of infection due either to an HIV -1 group (or subgroup) O or HIV-1 subgroup M retrovirus, characterized by the use of mixtures of two categories of peptides, those of the first category corresponding to those identified in claim 49.

53. Process of discrimination between an infection due to an HIV -1 group (or subgroup) O DUR retrovirus or variant, and an infection due to another type of HIV-1 group (or subgroup) O retrovirus, characterized by the placing in contact of the biological sample studied with any one of the following peptides: peptide (11) of claim 38, peptide (12) of claim 39 or peptide (13) of claim 40, peptide (14) or peptide (15) of claim 41 or peptides (17), (18), (19) and (20) of claim 44.

54. Vector containing a nucleic acid whose nucleotide sequence corresponds to any one of the sequences of claims 23 to 30.

55. Vector according to claim 57, characterized in that it is a plasmid.

56. Plasmid chosen from those which were deposited at the CNCM on Feb. 24, 1995 under the references I-1548, I-1549 and I-1550.

57. Cell containing a nucleic acid whose nucleotide sequence corresponds to any one of the sequences of claims 54 and 55.

58. Virus deposited on Feb. 23, 1995 at the CNCM under the reference I-1542.

59. Virus of the same type or subtype as the virus of claim 58, characterized in that the consensus peptides of this virus are recognized by antibodies which specifically recognize a peptide according to any one of claims 6 to 22.

60. Kit for the in vitro detection of antibodies against HIV, containing at least one peptide according to any one of claims 6 to 22.

61. Kit according to claim 60, also containing at least one consensus peptide derived from another HIV strain comprising: either an amino acid sequence which is separate from the sequence of this peptide, in which one or more amino acids are replaced with other amino acids, with the proviso that the peptide retains its reactivity with an antiserum against the consensus peptide, or an amino acid sequence in which one or more amino acids have been deleted or added, with the proviso that the peptide or polypeptide retains its reactivity with an antiserum against the consensus peptide.

62. Kit according to claim 60 or 61, characterized in that the other HIV strain is an HIV-LAI strain.

63. Process of discrimination between an infection with an HIV

-1 group (or subgroup) O retrovirus and an HIV-1 subgroup M retrovirus, using a serine protease whose cleaving action is carried out on an SR dipeptide, and comprising the detection of a cleavage or of a on-cleavage of the V3 loop of gp120 of the retrovirus, depending on whether this retrovirus is an HIV-1 group (or subgroup) O retrovirus or an HIV-1 subgroup M retrovirus..

64. Viral lysate as obtained by lysis of cells infected with a virus according to claim 58 or 59 or with an HIV-1.sub.(VAU) virus.

65. Protein extract of HIV-1 O.sub.(DUR) strain containing in particular an antigenic peptide according to any one of claims 6 to 22, or of HIV-1 group (or subgroup) O.sub.(VAU) strain containing in particular an antigenic peptide according to any one of claims 1 to 5.

66. Bacterial strain deposited at the CCNM on Oct. 20, 1994 under the access number I-1486.

67. Composition for detection and discrimination, in a biological sample, between an HIV-1 subgroup M retrovirus and an HIV-1 group (or subgroup) O retrovirus, comprising a mixture of two categories of peptides, the first being those identified in claim 49.

68. Peptide according to claim 8, characterized in that it consists of a peptide whose amino acid sequence is contained either in one of the following sequences:

IGGHQGALQ (23)

REPTGSDI (24)

or in a corresponding immunologically similar sequence, this peptide containing at least 4 consecutive amino acids of one of said sequences.

69. Peptide according to claim 7, characterized in that it consists of a peptide whose amino acid sequence is contained in the following amino acid sequence: INDEAADWD (25) or in a corresponding immunologically similar sequence, this peptide containing at least 4 consecutive amino acids of said sequence.

70. Nucleic acid coding for the peptides of claims 68 and 69.

71. Composition comprising at least one nucleic acid according to claim 70.

72. Use of at least one nucleic acid according to claims 70 and 71 for detection and discrimination between HIV-1 group M and HIV-1 group O strains.

L4 ANSWER 4 OF 12 USPATFULL
2003:26241 HIV-1 group O antigens and uses thereof.
DeLaporte, Eric, Saint Jean de Cuculles, FRANCE
Peeters, Martine, Saint Jean de Cuculles, FRANCE
Saman, Eric, Bornem, BELGIUM
Vanden Haesevelde, Marleen, Oudenaarde, BELGIUM
Innogenetics, N.V., BELGIUM (non-U.S. corporation)
US 6511801 B1 20030128

WO 9904011 19990128
APPLICATION: US 2000-462917 20000403 (9)
WO 1998-EP4522 19980720
PRIORITY: EP 1997-870110 19970718
DOCUMENT TYPE: Utility; GRANTED.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The claimed invention relates to an HIV-1 group O envelope antigen comprising SEQ ID NO: 100, and the use of said antigen as a reagent in the diagnosis of HIV-1 group O infection, and a kit therefore.
CLM What is claimed is:
1. An isolated antigen from the HIV-1 group O strain gp160 env precursor protein comprising the amino acid sequence of SEQ ID NO:100.

2. A method for detecting anti-HIV-1 antibodies in a sample comprising: a) contacting the sample with an isolated antigen from the HIV-1 group O strain gp160 env precursor protein comprising the amino acid sequence of SEQ ID NO:100, b) allowing the isolated antigen and anti-HIV antibodies to interact, and c) detecting the interaction between the antigen and the anti-HIV antibodies.

3. A kit for detecting HIV-1 antibodies comprising an isolated antigen from the HIV-1 group O strain gp160 env precursor protein comprising the amino acid sequence of SEQ ID NO:100.

4. An immunogenic composition comprising: a) an isolated antigen from the HIV-1 group O strain gp160 env precursor protein which comprises the amino acid sequence of SEQ ID NO:100; and b) a pharmaceutically acceptable carrier.

L4 ANSWER 9 OF 12 USPATFULL
2000:156965 Peptides for the detection of HIV-1 group O.
De Leys, Robert, Three Bridges, NJ, United States
Zheng, Jian, Raritan, NJ, United States
Ortho-Clinical Diagnostics, Inc., Rochester, NY, United States (U.S. corporation)
US 6149910 20001121
APPLICATION: US 1999-433428 19991104 (9)
DOCUMENT TYPE: Utility; Granted.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB This invention relates to peptides and their preparation. The peptides each have a sequence that corresponds to the immunodominant region of the HIV-1 group O gp41 envelope protein. The sequence is characterized in that it does not correspond to any known naturally occurring group O sequence or variant. Furthermore, the peptide binds anti-HIV-1 group O antibodies. There are several uses for the peptides, including the detection of antibodies produced in response to HIV-1 group O infection. The peptides may also be incorporated in mosaics and expressed recombinantly.
CLM What is claimed is:
1. A peptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:59
NQQRLNSWGCKGRIICYTSARWH,
SEQ ID NO;61
EQQRLNSWGCKGRIICYTSARWH,

SEQ ID NO:69
GRETLMQDQQRLNSWGCKGRIICYTSARWH,
SEQ ID NO:60
XQQRLNSWGCKGRIICYTSARWH,
SEQ ID NO:62
ETLMQXQQRLNSWGCKGRIICYTSARWH,
SEQ ID NO:64
RARLQALETLMQNQQRLNSWGCKGRIICYTSARWH, and
SEQ ID NO:65
DQQVNNVSSIIYDKILEAQDQQEENVRELLELD.

2. The peptide of claim 1 wherein said peptide binds anti-HIV group O antibodies.

3. The peptide of claim 1 wherein said peptide is made by recombinant or synthetic chemistry methods.

L4 ANSWER 10 OF 12 USPATFULL
1999:78540 Rapid assay for simultaneous detection and differentiation of antibodies to HIV groups.
Vallari, Anadruzela S., Libertyville, IL, United States
Hackett, Jr., John R., Libertyville, IL, United States
Hickman, Robert K., Mundelein, IL, United States
Varitek, Jr., Vincent A., Wildwood, IL, United States
Necklaws, Elizabeth C., Grayslake, IL, United States
Golden, Alan M., Wilmette, IL, United States
Brennan, Catherine A., Libertyville, IL, United States
Devare, Sushil G., Northbrook, IL, United States
Abbott Laboratories, Abbott Park, IL, United States (U.S. corporation)
US 5922533 19990713
APPLICATION: US 1997-912129 19970815 (8)
DOCUMENT TYPE: Utility; Granted.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method of performing a rapid assay for the simultaneous detection and differentiation of the analytes HIV-1 group M. HIV-1 group O and HIV-2 utilizing a sequence specific polypeptide of each analyte as capture reagents. An analytical. device also is provided for performing the method which includes these capture reagents. Also provided is a test kit which includes the analytical device which further can include a positive and negative control.
CLM What is claimed is:
1. A method for simultaneously detecting and differentiating between analytes comprising antibodies to HIV-1 group O, HIV-1 group M, and HIV-2 in a test sample, comprising: (a) contacting said test sample with an analytical device having a strip with a proximal end and a distal end, wherein said test sample moves from said proximal end to about said distal end by capillary action, and wherein said strip contains at least one immobilized capture reagent per analyte, for a time and under conditions sufficient to form capture reagent / analyte complexes by the binding of said analyte and said capture reagent; and (b) determining the presence of the analyte(s) by detecting a visible color change at the capture reagent site on the strip, wherein said capture reagent for HIV -1 group O comprises a polypeptide selected from the group consisting of SEQ ID NO: 48, SEQ ID NO: 50, SEQ ID NO: 52, SEQ ID NO: 54, SEQ ID NO: 58, and SEQ ID NO: 60, said capture reagent for HIV-1 group M comprises a polypeptide SEQ ID NO: 56, and said capture reagent for HIV-2 comprises a polypeptide SEQ ID NO:

55.

2. The method of claim 1, wherein said immobilized capture reagent is configured as a letter, number, icon, or symbol.

3. The method of claim 1, wherein a labeled reagent is contained within the strip in a situs between the proximal end and the immobilized patient capture reagent.

4. The method of claim 1, wherein said polypeptide capture reagents are produced by recombinant technology.

5. The method of claim 3, wherein said labeled reagent is selenium.

6. The method of claim 1, wherein said test sample is a body fluid.

7. The method of claim 6, wherein said body fluid is selected from the group consisting of whole blood, serum, plasma, urine and saliva.

8. An analytical device for simultaneous detecting and differentiating between HIV-1 group O, HIV-1 group M and HIV-2 in a test sample, comprising a strip with a proximal end and a distal end, wherein said test sample is capable of moving from said proximal end to about said distal end by capillary action, and wherein said strip contains at least one immobilized capture reagent per analyte, for binding of said analyte and said capture reagent; and wherein said capture reagent for HIV-1 group O comprises a polypeptide selected from the group consisting of SEQ ID NO: 48, SEQ ID NO: 50, SEQ ID NO: 52, SEQ ID NO: 54, SEQ ID NO: 58, and SEQ ID NO: 60, said capture reagent for HIV-1 group M comprises a polypeptide SEQ ID NO: 56, and said capture reagent for HIV-2 comprises a polypeptide SEQ ID NO: 55.

9. The analytical device of claim 8, wherein said immobilized capture reagent is configured as a letter, number, icon, or symbol.

10. The analytical device of claim 8, wherein a labeled reagent is contained within the strip in a situs between the proximal end and the immobilized patient capture reagent.

11. The analytical device of claim 10, wherein said labeled reagent is selenium.

12. The analytical device of claim 8, wherein said test sample is a body fluid.

13. The analytical device of claim 12, wherein said body fluid is selected from the group consisting of whole blood, serum, plasma, urine and saliva.

14. The analytical device of claim 8 wherein said polypeptide capture reagents are produced by recombinant technology.

15. A kit for use in specific binding assays, having an analytical device for determining the presence or amount of HIV-1 group O, HIV-1 group M and HIV-2 in a test sample, comprising a strip having a proximal end and a distal end, wherein said test sample is capable of moving from said proximal end to about said distal end by capillary action, and wherein said strip contains an immobilized capture reagent that binds to a member selected

from the group consisting of the analyte, an ancillary specific binding member and a labeled reagent, and wherein said capture reagent for HIV-1 group O comprises a polypeptide selected from the group consisting of SEQ ID NO: 48, SEQ ID NO: 50, SEQ ID NO: 52, SEQ ID NO: 54, SEQ ID NO: 58, and SEQ ID NO: 60, said capture reagent for HIV-1 group M comprises a polypeptide SEQ ID NO: 56, and said capture reagent for HIV-2 comprises a polypeptide SEQ ID NO: 55.

16. The test kit of claim 15 wherein said labeled reagent is selenium.

17. The test kit of claim 15, further comprising a positive reagent control.

18. The test kit of claim 15, further comprising a negative reagent control.

19. The test kit of claim 15, wherein said polypeptide capture reagents are produced by recombinant technology.

L4 ANSWER 11 OF 12 USPATFULL
1998:104556 Peptides for HIV-1 detection.
Bridon, Dominique P., Morton Grove, IL, United States
Sze, deceased, Isaac S.-Y., late of Gurnee, IL, United States by Carolina Luiz, Loch-Hung Leo Sze, Leah Samantha Sze, heirs
Daghfal, David J., Aurora, IL, United States
Jaffe, Keeve D., Trevor, WI, United States
Colpitts, Tracey L., Round Lake, IL, United States
Abbott Laboratories, Abbott Park, IL, United States (U.S. corporation)
US 5800983 19980901
APPLICATION: US 1997-837732 19970422 (8)
DOCUMENT TYPE: Utility; Granted.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB HIV-1 peptides having at least one point mutation between position 593 and 611 of the HIV-1 gp160 amino acid sequence. The point mutation either is at position 604 or 610, or both positions. Immunoassays which utilize these peptides are provided, as well as, diagnostic test kits which contain these peptides.
CLM What is claimed is:
1. A polypeptide having a point mutation in the HIV-1 sub-type B IDR at position 604.

2. The polypeptide of claim 1 wherein said point mutation at position 604 is a lysine (K).

3. The polypeptide of claim 2 as identified by SEQUENCE I.D. No. 2.

4. A polypeptide having a point mutation in the HIV-1 sub-type B IDR at position 610.

5. The polypeptide of claim 4 wherein said point mutation at position 610 is a tyrosine (Y).

6. The polypeptide of claim 5 as identified by SEQUENCE I.D. No. 3.

7. A polypeptide having two single point mutations in the HIV -1 sub-type B IDR at positions 604 and 610.

8. The polypeptide of claim 7 wherein said point mutation at position 604 is a lysine (K) and the point mutation at position 610 is a tyrosine

(Y).

9. The polypeptide of claim 8 as identified by SEQUENCE I.D. No. 4.

10. Polypeptide SEQUENCE I.D. No. 2.

11. Polypeptide SEQUENCE I.D. No. 3.

12. Polypeptide SEQUENCE I.D. No. 4.

13. An immunoassay to detect the presence of HIV antibodies in a test sample, comprising: a) contacting said test sample with a solid phase to which has been attached an HIV-1 polypeptide having a point mutation between positions 593 and 611 to form a first mixture, and incubating said first mixture for a time and for conditions sufficient to form polypeptide/antibody complexes; b) contacting said polypeptide/antibody complexes with an indicator reagent comprising a member of a specific binding pair attached to a signal generating compound capable of generating a measureable signal to form a second mixture, and incubating said second mixture for a time and for conditions sufficient to form polypeptide/antibody/indicator reagent complexes; and c) determing the presence of HIV antibodies in said test sample by detecting the measureable signal.

14. The immunoassay of claim 13 wherein said point mutation is at position 604.

15. The immunoassay of claim 13 wherein said point mutation is at position 610.

16. The immunoassay of claim 13 wherein said point mutations are at positions 604 and 610.

17. The immunoassay of claim 13 wherein said solid phase is selected from the group consisting of the walls of wells of a reaction tray, test tubes, polystyrene beads, magnetic beads, nitrocellulose strips, membranes, microparticles such as latex particles, red blood cells, and duracytes.

18. The immunoassay of claim 13 wherein said indicator reagent comprises a signal generating compound selected from the group consisting of chromogens, enzymes, luminescent compounds, chemilumninescent compounds, radioactive elements, and direct visual labels.

19. The immunoassay of claim 13 wherein said specific binding pair member of said indicator reagent is anti-human IgG.

20. In an immunoassay for detecting HIV antibody in a test sample comprising contacting said test sample with an HIV-1 polypeptide and detecting the presence of said antibody, wherein the improvement comprises utilizing a polypeptide having at least one point mutation between positions 593 and 611 of the HIV-1 gp 160 sequence.

21. A dignostic test kit capable of detecting HIV antibodies comprising a container containing a polypeptide having a sequence selected from the group consisting of SEQUENCE I.D. No. 2, SEQUENCE No. 3 and SEQUENCE No. 4.

L4 ANSWER 12 OF 12 USPATFULL

97:36058 Peptides for HIV-1 detection.
Bridon, Dominique P., Morton Grove, IL, United States
Sze, deceased, Isaac S.-Y., late of Gurnee, IL, United States by Carolina Luiz, Loch-Hung L. Sze, Leah S. Sze, heirs
Daghfal, David J., Aurora, IL, United States
Jaffe, Keeve D., Trevor, WI, United States
Colpitts, Tracey L., Round Lake, IL, United States
Abbott Laboratories, Abbott Park, IL, United States (U.S. corporation)
US 5624797 19970429
APPLICATION: US 1995-472597 19950607 (8)
DOCUMENT TYPE: Utility; Granted.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB HIV-1 peptides having at least one point mutation between position 593 and 611 of the HIV-1 gp160 amino acid sequence. The point mutation either is at position 604 or 610, or both positions. Immunoassays which utilize these peptides are provided, as well as, diagnostic test kits which contain these peptides.
CLM What is claimed is:
1. A polypeptide having a point mutation in the HIV-1 sub-type B IDR at position 604.

2. The polypeptide of claim 1 wherein said point mutation at position 604 is a lysine (K).

3. The polypeptide of claim 2 as identified by SEQUENCE I.D. No. 2.

4. A polypeptide having a point mutation in the HIV-1 sub-type B IDR at position 610.

5. The polypeptide of claim 4 wherein said point mutation at position 610 is a tyrosine (Y).

6. The polypeptide of claim 5 as identified by SEQUENCE I.D. No. 3.

7. A polypeptide having two single point mutations in the HIV -1 sub-type B IDR at positions 604 and 610.

8. The polypeptide of claim 7 wherein said point mutation at position 604 is a lysine (K) and the point mutation at position 610 is a tyrosine (Y).

9. The polypeptide of claim 8 as identified by SEQUENCE I.D. No. 4.

10. Polypeptide SEQUENCE I.D. No. 2.

11. Polypeptide SEQUENCE I.D. No. 3.

12. Polypeptide SEQUENCE I.D. No. 4.

13. An immunoassay to detect the presence of HIV antibodies in a test sample, comprising: a) contacting said test sample with a solid phase to which has been attached an HIV-1 polypeptide having a point mutation between positions 593 and 611 to form a first mixture, and incubating said first mixture for a time and for conditions sufficient to form polypeptide/antibody complexes; b) contacting said polypeptide/antibody complexes with an indicator reagent comprising a member of a specific binding pair attached to a signal generating compound capable of generating a measureable signal to form a second mixture, and incubating said second mixture for a time and for conditions sufficient to form polypeptide/antibody/indicator reagent complexes; and c) determing the presence of HIV antibodies in

said test sample by detecting the measureable signal.

14. The immunoassay of claim 13 wherein said point mutation is at position 604.

15. The immunoassay of claim 13 wherein said point mutation is at position 610.

16. The immunoassay of claim 13 wherein said point mutations are at positions 604 and 610.

17. The immunoassay of claim 13 wherein said solid phase is selected from the group consisting of the walls of wells of a reaction tray, test tubes, polystyrene beads, magnetic beads, nitrocellulose strips, membranes, microparticles such as latex particles, sheep (or other animal) red blood cells and duracytes.

18. The immunoassay of claim 13 wherein said indicator reagent comprises a signal generating compound selected from the group consisting of chromogens, enzymes, luminescent compounds, chemiluminescent compounds, radioactive elements, and direct visual labels.

19. The immunoassay of claim 13 wherein said specific binding pair member of said indicator reagent is anti-human IgG.

20. In an immunoassay for detecting HIV antibody in a test sample comprising contacting said test sample with an HIV-1 polypeptide and detecting the presence of said antibody, wherein the improvement comprises utilizing a polypeptide having at least one point mutation between positions 593 and 611 of the HIV-1 gp160 sequence.

21. A dignostic test kit capable of detecting HIV antibodies comprising a container containing a polypeptide having a sequence selected from the group consisting of SEQUENCE I.D. No. 2, SEQUENCE No. 3 and SEQUENCE No. 4.

L10 ANSWER 1 OF 1 WPIDS (C) 2003 THOMSON DERWENT
AN 1998-583190 [49] WPIDS
DNC C1998-174411
TI New synthetic peptide(s) - useful for, e.g. detecting infection by human immune deficiency virus of group O.
DC B04 D16
IN CHENEBAUX, D M B; DELAGNEAU, J H; GADELLE, S J X; RIEUNIER, F Y; DELAGNEAU, J F H; UNIER, F Y; CHENEBAUX, D M; DELAGNEAU, J; GADELLE, S J
PA (SNFI) PASTEUR SANOFI DIAGNOSTICS; (SNFI) PASTEUR SANOFI DIAGNOSTICS SA; (BIRA) BIO-RAD PASTEUR
CYC 84
PI WO 9845323 A1 19981015 (199849)* FR 55p
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
FR 2761993 A1 19981016 (199849)
AU 9873386 A 19981030 (199911)
FR 2775287 A1 19990827 (199941)
ZA 9802996 A 19991229 (200006) 59p
NO 9904929 A 19991208 (200009)
EP 973802 A1 20000126 (200010) FR

R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC NL PT RO SE SI

CZ 9903575 A3 20000614 (200037)
BR 9809078 A 20000801 (200043)
CN 1256695 A 20000614 (200048)
MX 9909106 A1 20000301 (200123)
NZ 500015 A 20010629 (200140)
KR 2001006216 A 20010126 (200152)
AU 740231 B 20011101 (200175)
JP 2001519800 W 20011023 (200202) 61p
RU 2184742 C2 20020710 (200260)

ADT WO 9845323 A1 WO 1998-FR691 19980406; FR 2761993 A1 FR 1997-4356 19970409; AU 9873386 A AU 1998-73386 19980406; FR 2775287 A1 FR 1998-2212 19980224; ZA 9802996 A ZA 1998-2996 19980408; NO 9904929 A WO 1998-FR691 19980406, NO 1999-4929 19991008; EP 973802 A1 EP 1998-920571 19980406, WO 1998-FR691 19980406; CZ 9903575 A3 WO 1998-FR691 19980406, CZ 1999-3575 19980406; BR 9809078 A BR 1998-9078 19980406, WO 1998-FR691 19980406; CN 1256695 A CN 1998-805202 19980406; MX 9909106 A1 MX 1999-9106 19991005; NZ 500015 A NZ 1998-500015 19980406, WO 1998-FR691 19980406; KR 2001006216 A KR 1999-709296 19991009; AU 740231 B AU 1998-73386 19980406; JP 2001519800 W JP 1998-542455 19980406, WO 1998-FR691 19980406; RU 2184742 C2 WO 1998-FR691 19980406, RU 1999-123443 19980406

FDT AU 9873386 A Based on WO 9845323; EP 973802 A1 Based on WO 9845323; CZ 9903575 A3 Based on WO 9845323; BR 9809078 A Based on WO 9845323; NZ 500015 A Based on WO 9845323; AU 740231 B Previous Publ. AU 9873386, Based on WO 9845323; JP 2001519800 W Based on WO 9845323; RU 2184742 C2 Based on WO 9845323

PRAI FR 1998-2212 19980224; FR 1997-4356 19970409

AB WO 9845323 A UPAB: 19981210
Synthetic peptides (A), of 13-33 amino acids (aa) when monomeric or 26-66 when dimeric (either linear or cyclised by Cys-Cys-disulphide bonds), have formula (I): Delta -Z-Trp-Gly-Cys-th-Cys-Tyr-Ser- Omega (I) Delta = biotinyl, biocytinyl, hydrogen, acetyl, aliphatic chain (preferably 1-6 C alkyl, or 2-6 C alkenyl or aminoalkylcarbonyl) , optionally containing 1 or 2 mercapto, formyl or amino groups; Z = x1-(Ser, Gln or Asn)-x2; x1 = 0-9 aa; x2 = 0-5 aa; th = -AA1-AA2-AA3-AA4-AA5-; AA1 = Lys, Arg or Thr; AA2 = Gly or Asn; AA3 = Lys, Arg or ornithine (Orn); AA4 = Leu, Ala, Ile or Gln; AA5 = Ile, Val, Leu, Thr, norleucine (Nle) or norvaline (Nva); provided that AA1-AA5 is not Lys-Gly-Lys-Leu-(Ile or Val); Omega , attached to carbonyl of Ser, = hydroxy, amino, 1-6 C alkoxy, Val- - phi , -Z-Trp-Gly-Cys-th-Cys-Tyr-Thr-Ser- psi , or Val- -Z-Trp-Gly-Cys-th-Cys-Tyr-Thr-Ser-Val- - psi ; , optionally absent, = AA6-Trp-(Asn or His)-AA7-AA8; AA6 = aa other than Lys; AA7 = any aa; AA8 = Ser or Thr; phi , attached to carbonyl on AA8,Val or Ser, = OH, amino or 1-6 C alkoxy.

USE - (I), or their mixtures, are useful as immunological reagents for detecting infection by group O human immune deficiency virus (HIV). They represent variable sequences connected around short highly conserved sequences present in isolates of this group.

ADVANTAGE - (A) are better diagnostic agents than synthetic peptides that carry the immunodominant epitopes of gp41 of group O viruses.

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